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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/553,993	08/03/2006	Patrick Lacroix-Desmazes	279742US0PCT	6577

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EXAMINER	
VALENROD, YEVGENY	
ART UNIT	PAPER NUMBER
1621	

NOTIFICATION DATE	DELIVERY MODE
03/10/2009	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No.	Applicant(s)	
	10/553,993	LACROIX-DESMAZES ET AL.	
	Examiner	Art Unit	
	YEVEGENY VALENROD	1621	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *10 November 2008*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *17-19,23 and 37-44* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *17-19,23 and 37-44* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

The following is a final office action in application # 10/553,993.

Amendments to claims filed 11/10/08 are acknowledged.

Applicants' remarks have been fully considered and are addressed following the rejection on the merits.

Withdrawn rejections

Rejection of claims 17-25 under 35 USC 112 second paragraph is withdrawn in view of applicants' remarks and amendments.

Rejection of claims 17-20 and 22-24 under 35 USC 102(b) is withdrawn in view of applicants' amendments and remarks.

Rejection of claims 17-25 under 35 USC 103(a) is withdrawn in view of applicants' remarks and amendments.

New rejections and objections necessitated by applicants' amendment

Claim Objections

Claims 42-43 are objected to because of the following informalities: the status identifiers for claims 42-43 is "Previously Presented". However, 42 and 43 have not been presented before and are "new" claims. The status identifiers in the claim set must reflect the true status of the claims.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 17-19, 23, 37-44 are rejected under 35 U.S.C. 103(a) as being unpatentable over Perret et al. (*Helv. Chem. Acta* **1945**, *28*, 558-575; translation).

Scope of prior art

Perret et al. disclose a process where benzoyl peroxide, molecular iodine and stilbene are reacted together (page 25, section titled "experimental results", paragraph 1). Phenyl iodide, an iodinated organic compound, is produced and isolated (page 25, section titled "experimental results", paragraph 3).

Ascertaining the difference between instant claims and prior art

Perret et al. fail to teach the specific variants (1) and (2) a recited in the instant claim 17.

Perret et al. fail to teach the reagent ratios recited in the instant claims

Perret et al, fail to teach the change in the color of the contents of the reactor (instant claim 23).

Perret et al fail to teach stopping the reaction by cooling the contents of the reactor (instant claim 40).

Obviousness

Perret et al teach production of phenyl iodide from a process that utilizes a free radical initiator, a ethylenically unsaturated double bond compound and molecular iodide. Although the phenyl iodide is not described as the desired product of the process, it is never the less produced. There is motivation in the art to produce phenyl iodide. Phenyl iodide is a well known starting material for a large number of organometallic coupling reactions such as Sonogashira, Heck and Stille reactions. One skilled in the art wishing to increase production of phenyl iodide in the process of Perret et al would have found it obvious to change the ratio of the reagents. Doing so, falls within the scope of routine experimentation and is not patentable absent unexpected results.

The specific variant (1) and (2) are obvious. Stopping reaction upon consumption of one of the reagents is obvious. Stopping the reaction when the color change from dark to light has occurred is also obvious. Presence of iodine in solution is well known to result in coloring of the solution, as iodine is consumed by the reaction

the solution is expected to get lighter. Stopping the reaction when the color change has taken place is obvious because the color change indicated consumption of one of the reagents.

Stopping the reaction by cooling the reaction mixture is also obvious. If the reaction is driven by heat, removing the heat is an effective way of stopping the reaction process. In the instant case the reaction is conducted at elevated temperature (80degC, see page 31 first full paragraph).

Claims 17-19, 23, 37-44 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chambers et al (Journal of fluorine chemistry, 1995, 73, 87-94) in view of March (Advanced organic chemistry, Fifth edition, 2001, page 977) and in further view of Moczygemba et al. (US 5,055,713).

Instant claim are directed to a process where iodinated organic substance(s) is formed. The process comprises a free radical initiator, iodine and an alkene. The product formed is below 1000MW and additional limitations of claims 19-25 include:

- Alkene is not the limiting reagent (claim 20)
- More iodine than initiator is added (claim 21)
- Additional step (3), where the reaction is stopped.
- More initiator than iodine is added (claim 24)
- Product is isolated after the reaction is stopped (claim 25).

Scope of prior art

Chambers et al teach addition of molecular iodine to an olefinic compound to produce an iodinated organic compound of less than 1000MW (page 88, column 1, section **2. results**, line 5; reaction (2)).

Ascertaining the difference between instant claims and prior art

Chambers fails to teach presence of a free radical initiator in the production of iodinated compound.

Secondary reference

1) March et al teach that in a free radical addition a free radical can obtained by hemolytic cleavage of the YW moiety (as taught by chambers) or a radical from another source (R) (page 97 Section titled "free radical addition").

2) Moczygemba et al teaches that free radical initiators are a source of radicals and specifically lists t-butyl hydroperoxide as an initiator (column 3, line55).

Obviousness

Chambers teaches production of iodinated organic molecules using iodine as a source of radicals. March teaches that a different source of radicals can be used. Moczygemba teaches free radical initiators that are well known in the art to be a source of free radicals. When combined the three references teach the instant invention. UV irradiation of iodine to form the radicals as taught by Chambers can be avoided by using thermal cleavage and a free radical initiator that undergoes homolytic cleavage under thermal conditions. The result of using a free radical initiator is that the reaction will work in the same or very similar manner as without iodine being the source of radicals, as suggested by March, i.e. an organic iodinated substance will be formed.

Limitations directed to the relative concentration of reagents are obvious. One of ordinary skill in the art would have been motivated to attempt various reagent concentrations in order to find optimal conditions for the process. The said limitations are therefore obvious absent unexpected results.

The claimed step (3) where the reaction is stopped and the reactants are separated is also obvious. It is obvious to stop a reaction to avoid production of byproducts and to isolate the desired product. Applicants have not indicated that isolation of the product has yielded anything other than the expected result, the product is isolated.

Reply to applicants' remarks

A) Perret et al.

Applicants have presented arguments concerning applicability of Perret et al as art. Applicants have argued that Iodine is used as a catalyst in the reaction studies by Perret et al., not as a reagent.

Although it is true that Perret et al intended for Iodine to be a catalyst, iodine comprising product is nevertheless formed. In forming the said product Iodine clearly did not act as a catalyst, because it was incorporated in the product. It is common in the art to look at a particular process, products and byproducts and alter the reaction conditions such as to increase the amount of byproduct is formed. The motivation for doing so is the desire to obtain the byproduct rather than the main product of the process. Perret et al do not describe the variations (1) and (2) with corresponding

reagent concentrations as recited in the instant claims, however in modifying the reaction condition to produce more of the byproduct it is well known to change the relative concentration of the reagents.

B) Chambers et al.

Applicants' have traversed the rejection over Chambers et al in view of March and Moczygemba. Applicants have argued that Chambers et al fails to disclose the use of a free radical generating substance as required by the instant claims.

Examiner agrees that Chambers fails to disclose or suggest use of a free radical generating substance from a list in the instant claim 17. However, it is Examiners position that this deficiency in Chambers is cured by March and Moczygemba. March teaches an additional source of radicals and Moczygemba teaches a specific source recited in the instant claims. The obviousness argument results from combining known elements in the art to perform the same function as performed in the art. The ratios of reagents is not simply dismissed as the applicant argues. It is well settled that altering ratios of reagents is obvious in the art. Applicants needs to provide unexpected results from the combination of the elements known in the art and/or from the specific ratios of reagents that are found in the instant claims. One skilled in the art would expect that achieving free radical formation using t-butyl hydroperoxide as initiator and iodine would result in formation of the same products as in using iodine alone.

Conclusion

Claims 17-19, 23, 37-44 are pending

Claims 17-19, 23, 37-44 are rejected

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Yevgeny Valenrod whose telephone number is 571-272-9049. The examiner can normally be reached on 8:30am-5:00pm M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Daniel Sullivan can be reached on 571-272-0779. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Yevgeny Valenrod/

_____

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